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DRAFT WORK PROGRAMME AND BUDGET OF THE AFRICAN REGIONAL CENTRE FOR SOLAR ENERGY

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I. INTRODUCTION

1. As far as can be envisaged during the period from immediately after the Inaugural Meeting of the Council and election of the Executive Board until June 1984 the African Regional Centre for Solar Energy (ARCSE) will be preoccupied with the difficult task of laying the foundations for its operational stages. This will include establishment of basic support services during the interim period, building of the headquarters of the secretariat, recruitment of the nucleous and other staff, training of the Centre's staff and general familiarization with the problems related to new and renewable sources of energy (NRSE) in the member States. These are essential initial tasks to which the secretariat is expected to devote the first two years.

2. The draft work programme for this period is a tentative one, based on several assumptions regarding availability of financial resources and staff and the pace at which the Centre attains operational status.

II. SUMMARY OF ACTIVITIES OF THE ARCSE DURING THE FIRST TWO YEARS

3. The activities to be carried out during the first two years are tentatively divided in four phases:

(a) Preliminary phase includes recruitment of personnel for Interim Secretiat period of 7 months starting June 1982 (one CTA, two energy consultants and one secretary). This personnel will define the functioning and immediate recruitment of a consultancy

team for the implementation of the second phase. This personnel will define the functioning of the Centre in light of the decisions taken by the Inaugural meeting of the Council will initiate recruitment of the unucleous of the Centre (Executive Director, Deputy Executive Director, CTA, sectoral Directors), will define the staffing of the Units of the Centre; and will define the laboratories and training equipment.

(b) Second phase, which will last also 7 months, in parallel with the preliminary phase, is dedicated to the preparation of design studies for building, laboratories and workshops; to the preparation of equipment specifications and acquisition and storage of equipment. One Chief Designer, one architect, one building engineer, two technologists, one economist and one secretary will be involved by this phase.

(c) Third phase has a duration of 17 months and will be dedicated to the construction of the main building which includes the Secretariat offices, training classes, conference hall and laboratories, construction of workshops and garage building; installation of equipment; preparation of experimental site and recruitment of the remaining staff of the Centre. This phase will imply a separate project prepared by the recruited team of experts during the second phase.

(c) Fourth phase has a duration of 7 months, overlapping the last 7 months of the third phase. It will be dedicated to the provision of training support to the Centre's staff as follows:

- initiation of the Centre's personnel in the activities related to development and utilization of NRSE at regional level;

- preparation of R & D, training and experimental manufacturing programmes of the Centre;

It relies on the personnel of the second phase (without architect) who will perform the above duties, and on a newly recruited training expert, for a period of seven months only.

III. SUMMARY OF REGULAR ACTIVITIES OF THE ARCSE DURING THE THIRD YEAR

4. It is assumed that starting with the third year, the Centre will become fully operational and will carry out its regular activities through the following units:

(a) Administration Unit shall deal with Personnel, Finance, Conferences and General Services matters. It develops and implements administrative and finance policies and procedures of the Centre and undertakes, inter alia, special activities such as:

(i) mobilization of external financial aid for the implementation of projects on NRSE development and utilization at national, subregional and regional levels;

(ii) mobilization of funds for regional programmes related to design and manufacturing of equipment using NRSE;

(iii) study the establishment of financial institutions specialized in the field of NRSE at national, subregional and regional levels and securing co-ordination of their activities;

(iv) enter into contracts of research and development with national and subregional centres.

As far as Conferences matters are concerned, the Unit follows up the regular programme of meetings, providing support in translation, interpretation, reproduction etc.

Concerning general services, it ensures the maintenance of buildings, laboratories and auxiliary equipment of the Centre.

(b) Documentation and Information Unit works towards the establishment of a data bank on solar energy and its derivatives; organizes a continuous exchange of information with national, subregional, regional and international organizations involved in solar, wind and biomass energy activities; disseminates results of solar energy studies elaborated in the region or elsewhere in the world; ensures that research findings are made the common property of the member States; organizes the library and its activities; advise on, and support the establishment of national documentation units on NRSE; undertakes popularization of NRSE development and utilization, etc.

(c) Energy Strategy and Co-operation Unit is involved in the following activities:

(i) elaboration of an energy strategy at national, sburegional and regional levels;

(ii) allignment of the elaborated strategy with the African Strategy for development and utilization of NRSE and adapt it to the national, sub-regional and regional needs;

(iii) advising and participation in the elaboration of national energy policies, national programmes for development and utilization of NRSE and integration of these programmes into overall economic development of specific areas or countries;

(iv) elaboration of models of programmes for the inventory of NRSE and related needed manpower in Africa;

(v) preparation of short-, medium- and long-term strategies for research and development of NRSE in Africa, at all levels, including transfer and adaptation of technology;

(vi) formulation of programmes and policies for information and training in the field of NRSE at all levels in Africa;

(vii) advising in the assessment of energy needs and supply at all levels in Africa;

(viii) co-ordinating research, development and applications activities in the field of NRSE in Africa;

(ix) strengthening of the existing centres and encouraging the establishment of new national centres as necessary and establish subregional centres for purposes of liaison and co-ordination in the field of research and development of solar energy utilization in Africa;

(x) promote multinational co-operation with regard to the practical use of solar, wind and biomass energy.

(d) Research and Applications Unit has the responsibility of the implementation of research, development, transfer and adaptation of technology and test activities in three fields: solar, wind and biomass energy.

It strengthens research in solar energy and its derivatives and undertakes experimentation and applications of such energy at national, subregional and regional levels in Africa. The Unit also supports member States in carrying out fundamental research and in carrying out research and products development.

(i) In the field of solar energy, the activities are focussed on research, development experimentation and tests in the photovoltaic field such as production of electricity, water pumping and air conditioning/refrigeration and in the thermodynamic field such as heating, drying, distillation, cooking, water pumping and cooling. Inventory of solar energy potential and measurement of solar radiation are carried out and systematized respectively.

(ii) In the field of wind energy, the activities are concentrated on inventory of wind energy potential, research development, experimentation and tests of equipment and applications in such fields as water pumping, production of electricity, energy storage, etc.

(iii) In the field of biomass energy, the activities are also concentrated on inventory of its potential, on research, applications and tests in such directions as methanization, direct combustion, pyrolisis/gasification and production of **methanol and ethanol.**

The activities of the Research and Applications Unit are cross-related to the activities of all technical Units of the Centre including training activities.

(e) Design Manufacturing and Maintenance Unit undertakes activities in close co-operation with Research and Applications Unit in the field of phototypes designing, manufacturing and experimentation. It also tests products, systems or appliances for performance, reliability and adaptability. The Unit popularizes manufacturing of equipment using locally available raw materials and organizes demonstration of equipment using solar, wind and biomass energy. It participates in training programme of the Centre and undertakes maintenance of vehicles, working equipment and demonstration site equipment of the Centre.

(f) Training Unit prepares and implements the training programme of the Centre, including fellowships, ensures training of the Centre's staff, organizes meetings, seminars, study tours etc., assists in formulating and implementing national training programmes in the field of NRSE and provides expertise to the national and subregional centres involved in solar, wind and biomass energy activities. This Unit draws upon the expertise of other Units in particular Research and Applications Unit and Design, Manufacturing and Maintenance Unit.

IV. SOURCES OF REVENUE

5. The financial resources of the Centre shall consist of annual and special contributions from the member States of the Centre; assistance, aid, loans, gifts, bequests or grants from Governments, international organizations, financial institutions, public or private institutions, associations, juridical or individual persons; and fees and other charges levied by the Centre for services rendered under the provisions of its Constitution.

6. Subject to such financial regulations as the Council may make, the budget of the Centre shall be administered by the Executive Director of the Centre under the supervision of the Executive Board.

7. The Executive Director and Deputy Executive Director of the Centre may, with the approval of the Executive Board, receive directly gifts, bequests, aid and other resources from Governments, public, private and international institutions, associations juridical or individual persons and from Governments, States or institutions with which the Centre has established relations under the provisions of Article 13 of its Constitution, and may for this purpose, enter into related agreements.

(a) Contributions from African Governments

8. Whatever other sources of financing may materialize, it must be stressed that the African Governments must accept fundamental responsibility for financing the activities of the Centre. It is expected therefore that the member States of the Centre will come to an agreement concerning the sharing of expenses by working out a formula to govern the regular contributions each Government would make. This practice of sharing expenses is familiar to African countries which are members of the United Nations, OAU, ADB and many other world, regional and subregional organizati which are financially supported by participating Governments.

9. The secretariat is proposing that the Executive Board when it will be elected should adopt, possibly on a provisional basis, scale of assessment approved by the OAU Assembly of Heads of State and Government in 1981 for contributions by member States o the Centre towards its regular budget.

10. In addition to regular contributions by the member States of the Centre, the Council or the Executive Board might consider soliciting special donations from Africa Governments to help the Centre establish its basic support services as rapidly as possible.

11. It is of immediate importance that the Council should take a decision at its inaugural meeting on the provision of funds for the initial and regular budget of the Centre as illustrated in Annex II and III

(b) Grants from developed countries

12. It is well known that emerging institutions succeed in attracting financial grants from aid-giving organizations and Governments in the developed countries. Such grants take several forms: provision of specialist personnel, equipment, fellowships, and so on. Some of these grants are provided as funds-in-trust for specific projects to be agreed on between the donor and the recipient institution.

13. Should the Executive Board, when it will be elected consider it worth while to follow up this line of action, the secretariat is prepared to assist it.

(c) Contributions from the United Nations and its specialized agencies

14. The secretariat expects that representatives of various United Nations bodies and specialized agencies attending the inaugural meeting of the Council will be in a position to indicate the nature of assistance which their respective organizations would be willing to offer to the Centre.

(i) Other sources

15. Grants from African investment and development institutions and technical assistance from bilateral and multinational sources are other suggested sources. The Council and the Executive Board are invited to provide specific guidance to the secretariat concerning arrangements for tapping such possible sources of finance.

V. DRAFT WORK PROGRAMME AND BUDGET OF THE ARCSE FOR THE FIRST THREE YEARS

16. The draft work programme of the Centre reflects the activities of the Centre as described under Chapters II and III. It covers three years and is divided in five phases: phase one through four cover the first two years (Annex I) and have a corresponding initial draft budget (Annex II). The phase five corresponds to the third year and reflects regular activities of the Centre with complete staff and equipment (Annex I). The budget for this phase is given in Annex III. Details of cost of the Centre's buildings and equipment are given in Annex IV. Finally, planning of activities for the first two years of the Centre is given in Annex V in the form of a schematic diagram.

17. The regular work programme which covers the third year (phase five) refers to technical aspects only and is presented in a general manner without breaking down the objectives by Unit. It is assumed that each Director of the Unit concerned will elaborate a detailed work programme based on the guidelines provided by this work programme.

DRAFT WORK PROGRAMME OF ARCSE FOR THE PERIOD JUNE 1982 - MAY 1985

Activity	Timing
1. **Preliminary phase**	**June 1982 - Dec. 1982**
(a) Establishment of Interim Services for the Centre	June 1982
(b) Preparation of detailed financial regulations, staff rules and regulations or other administrative manuals	Oct. 1982 - Dec. 1982
(c) Definition of the functioning of the Centre in the light of the decisions taken by the Inaugural Meeting of the Council	June 1982 - Oct. 1982
(d) Recruitment of initial staff:	
Initiate recruitment of the nucleous staff of the Centre: Executive Director, Deputy Executive Directors, Sectoral Directors	June 1982 - Nov. 1982
(e) Definition of the staffing of the Sectoral Units	August 1982 - Nov. 1982
(f) Definition of laboratories and training equipment	July 1982 - Dec. 1982
(g) Recruitment of Consultancy Team for implementation of the Second phase of the project	June 1982 - Nov. 1982
(h) Formulation of a detailed work programme for 1983	Nov. 1982
2. **Second phase**	**June 1982 - Dec. 1982**
(a) Preparation of design studies for building - laboratories and workshops	July 1982 - Dec. 1982
(b) Preparation of equipment specifications	Aug. 1982 - Dec. 1982
(c) Acquisition of equipment	Oct. 1982 - Dec. 1982

3.	Third phase	Jan. 1983 - May 1984
	(a) Construction of buildings	Feb. 1983 - Feb. 1984
	(b) Installation of equipments	June 1983 - May 1984
	(c) Preparation of experimental site	Dec. 1983 - May 1984
	(d) Recruitment of the complementary staff of the Centre	Jan. 1983 - May 1984
	(e) Putting running services and basic installations	Jan. 1983 - Feb. 1984
	(f) Formulation of a detailed programme of work for 1984 with projection to 1985	Oct. 1983 - Dec. 1983
	(g) Organization of three subregional training seminars on NRSE	
	1st Seminar	Nov. 1983
	2nd Seminar	Feb. 1984
	3rd Seminar	July 1984
4.	Fourth phase	Nov. 1983 - May 1984
	(a) Identification of training needs in the fields of NRSE through consultations and contacts with Governments and the public and private sectors in various African countries	Nov. 1983 - May 1984
	(b) Training of the staff of the centre in the activities related to NRSE at regional level and in the activities of the Centre	Nov. 1983 - May 1984
	(c) Elaboration of R & D, training, and manufacturing programme of the Centre	March 1984 - May 1984
	(d) Organization of the Centre's library and information support	March 1984 - May 1984

(e) identification of needs for technological information as a factor in the development and transfer of technology among African countries and design of a system to meet these needs to insure the integration at African level of technics of use of NRSE — March 1984 - May 1984

(f) Organization of two subregional training seminars on NRSE

1st Seminar — Oct. 1984
2nd Seminar — Dec. 1984

(g) Compilation of a register or registers of African institutions in R & D development of use of NRSE — Nov. 1983 - May 1984

(h) Establishment of basic support services and arrangements for providing consultancy services to member States — Nove. 1983 - May 1984

(i) Consultancy missions to African countries in response to specific needs in the field of NRSE — Nov. 1983 - May 1984

(j) Assistance in planning and establishing national centres for NRSE — Dec. 1983 - May 1984

(k) Organization of a Regional Seminar for senior government experts to familiarize them with the energy plannification problems at national level — May 1984

5. Fifth phase — June 1984 - May 1985

(a) Introduction into the national development plans, with priority status, of projects for the development and utilization of solar, wind and biomass energy

(b) Preparation of training programmes in the field of NRSE and their introduction into school and university curricula

(c) Implementation of priority research, experimentation and fundamental research programmes as prepared during the phase four

(d) Organization and implementation of a comprehensive assistance programme to member States in the field of fundamental research

(e) Assistance to the existing national centres for the implementation of their research programmes and support in the establishment of new national and subregional centres

(f) Promotion of multinational co-operation with regard to development and utilization of solar, wind and biomass energy

(g) Manufacturing of prototypes, their experimentation and dissemination of technical sheets

(h) Interconnexion of the Centre's data bank on NRSE with PADIS

(i) Organization of seminars on: energy strategy, energy planning, solar energy, wind energy, biomass energy, co-operation in the field of NRSE and energy potential assessment as part of the Centre's training programme

(j) Organization of exhibitions, study tours, demonstration site of the Centre and national demonstration centres; participation in trade-fairs

(k) Carrying out of tests on products, systems or appliances for performance, reliability and adaptability

DRAFT BUDGET ESTIMATES OF ARCSE PERSONNEL
FOR THE FIRST THREE YEARS

	1st Phase June-Dec. 1982 (7 months)		2nd Phase June-Dec.1982 (7 months)		3rd Phase Jan. 1983-May 1984 (17 months)		4th Phase Nov. 1983-May 1984 (7 months)		5th Phase June 1984-May 1985 (12 months)	
	m/m	US$	m/m	US$	m/m	US$	m/m	US$	m/m	US$
A. NUCLEOUS STAFF										
1. Executive Director	4	8 000	-	-	17	34 000	-	-	12	24 000
1 Deputy Executive Director	4	8 000	-	-	17	34 000	-	-	12	24 000
1 CTA	7	12 600	-	-	17	30 600	-	-	12	21 600
1 Admin. Director	4	7 200	-	-	17	30 600	-	-	12	21 600
7 Technical Directors	28	50 400	-	-	119	214 200	-	-	84	151 200
1 Secretary	4	3 200	-	-	12	9 600	-	-	-	-
Travel	-	80 000	-	-	-	33 000	-	-	-	25 000
Miscellaneous	-	14 000	-	-	-	39 000	-	-	-	28 000
Sub-total	51	183 400	-	-	199	425 000	-	-	132	295 400
B. CONSULTANCY TEAM										
1 Chief designer	-	-	5	25 000	17	85 000	-	-	-	-
1 Architect	-	-	5	25 000	17	85 000	-	-	-	-
1 Building engineer	-	-	5	25 000	17	85 000	-	-	-	-
3 Technologists	-	-	10	45 000	-	-	14	63 000	-	-
1 Economist	-	-	5	22 500	-	-	7	31 500	-	-
1 Training Expert	-	-	-	-	-	-	7	31 500	12	54 000
1 Secretary	-	-	5	4 000	17	13 600	-	-	-	-
Travel & DSA	-	-	-	74 000	-	120 000	-	75 000	-	34 000
Miscellaneous	-	-	-	19 850	-	38 400	-	20 000	-	12 000
Sub-total	-	-	35	240 350	68	427 000	28	221 000	12	100 000
C. REGULAR STAFF (other than nucleous)										
Salaries 126 staff members (Annex III)	-	-	-	-	756	738 000	882	861 000	1512	1 476 000
Travel for 63 staff and families to duty st.	-	-	-	-	-	252 000	-	-	-	-

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Annex II

	1st Phase June-Dec. 1982 (7 months)		2nd Phase June-Dec. 1982 (7 months)		3rd Phase Jan. 1983-May 1984 (17 months)		4th Phase Nov. 1983-May 1984 (7 months)		5th Phase June 1984-May 1985 (12 months)	
	m/m	US$	m/m	US$	m/m	US$	m/m	US$	m/m	US$
Travel on missions	-	-	-	-	-	15 000	-	30 000	-	30 000
Miscellaneous	-	-	-	-	-	55 300	—	115 000	-	150 000
Sub-total	-	-	-	-	756	1 060 300	882	1 006 000	1512	1 656 000
D. TRAINING SUPPORT AND FELLOWSHIPS										
Fellowships, study tours, seminars etc.	-	-	-	-	-	-	-	-	-	400 000
Sub-total	-	-	-	-	-	-	-	-	-	400 000
E. MAINTENANCE										
Administration, etc.	for Phase 1 through 4 please see Annex IV									332 000
Sub-total										332 000
T O T A L	51	183 400	35	240 350	1023	1 912 300	910	1 227 000	1656	2 783 400

GRAND TOTAL: US$6 346 450

DRAFT ANNUAL BUDGET ESTIMATES FOR ARCSE'S REGULAR ACTIVITIES

A. PERSONNEL SALARIES

	Staff	Category	Number	Montly Net Salary (in US$)	Yearly Salary (in US$)
1.	Ex. Director and Deputy	D1	2	2 000	48 000
2.	Senior Staff	P5	9	1 800	194 400
	Sub Total		11	-	242 400
3.	Professionals	P4	24	1 400	403 200
4.	Technicians	P1	39	1 000	468 000
5.	General Services Staff	GS 6/9	63	800	604 800
	Sub Total		126	-	1 476 000
	TOTAL SALARIES				1 718 400
B.	CONSULTANCY SERVICES AND TRAVEL				143 000
C.	TRAINING SUPPORT AND FELLOWSHIPS				400 000
D.	MAINTENANCE, ADMINISTRATION, ETC				332 000
E.	MISCELLANEOUS				190 000
	GRAND TOTAL				2 783 400

TENTATIVE COST ESTIMATES FOR THE BUILDINGS, EQUIPMENT AND OTHERS OF THE ARCSE

		US$
1.	Main building (1300 sq. meters) and workshop, garage (1200 sq. meters)	1,800.000
2.	Preparation of demonstration/experimental site	400,000
3.	Furniture for the offices of the main building	200,000
4.	Technical and utilities equipment	100,000
5.	Laboratories and training equipments	390,000
6.	Equipment for workshops (Solar, Wind and Biomass testing equipment)	410,000
7.	Vehicles (2 Trucks of 3.5 Ton each, 2 Land Rovers, 2 Service Cars)	250,000
8.	Services (including installation of equipment, maintenance, administrative, etc.)	350,000
	Total	3,900.000

ARCSE : DRAFT BUDGET ESTIMATES (RECAPITULATION)

		US$
A.	Staff salaries, Consultancy Services Travel, Training (ANNEX II)	
1.	Phase I (June - December 1982).....	183,400
2.	Phase II (June - December 1982).....	240,350
3.	Phase III (Jan. 1983 - May 1984).....1,912,300	
4.	Phase IV (Nov. 1983 - May 1984).....1,227,700	
5.	Phase V (June 1984 - May 1985).....2,783,400	
B.	Buildings, Equipment and others (ANNEX IV)..	3,9000,000
	TOTAL FOR THE FIRST THREE YEARS:	10,246,450

PLANNING OF ACTIVITIES DURING THE FIRST TWO YEARS
OF ARCSE

	1982							1983											1984				
	Jun	ul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
1. Preliminary Phase																								
- Recruitment of nucleous staff and consultants																								
- Defining of staffing and functioning																								
2. Second Phase																								
- Preparation of design studies for building & workshops																								
- Preparation of Equipment specifications																								
- Acquisition and storage of equip.																								
3. Third Phase																								
- Construction of the main building, workshop, garage																								
- Recruitment staff																								
- Installation of equip. of the Centre																								
- Preparation of expr.site																								
4. Fourth Phase																								
- Training of staff																								
- Starting tech. activ.of Cent.																								